

L 1357L-63

EWP(q)/EWT(m)/BDS

AFFTC/ASD

JD

ACCESSION NR: AP3000184

S/0080/63/036/004/0800/0806

58

56

AUTHOR: Titov, V. K.; Makarov, Ye. F.TITLE: Effect of halide selection on the chrome-plating of ironSOURCE: Zhurnal prikladnoy khimii, v. 36, no. 4, 1963, 800-806

TOPIC TAGS: chrome-plating technique

ABSTRACT: The experimental study shows that by increasing the atomic number of the halide which is introduced into the chrome-plating mixture, the quantity of chromium adsorbed on the surface of iron increases during the chrome plating process while the exchange factor m is expressed as follows: $m = q_1/A_1 : q_2/A_2$ where q_1 and q_2 is the weight of adsorbed chromium and lost iron respectively. A_1 and A_2 are their atomic weights. Thermodynamic calculation showed that the increase of quantity of chromium adsorbed when the change is made from fluoride to iodide is explained by the fact that, with an increase of the atomic number of a halide, a higher concentration of chromium halide in the gaseous form is observed. At the same time, the decrease of exchange factor m is explained by the decrease of chromium concentration or iron which are reduced by hydrogen. Best results are obtained

Card 1/2

L 13571-63

ACCESSION NR: AP3000184

when the test samples are saturated or directly placed into the chrome-plating mixture rather than placing them into the powder mixture.¹⁴ Fortunately, the grains of ferric chromate protect the iron from losses which would result in the formation of halogenates. In addition to the above, the formation of chromium halogenates directly near the surface of iron results in a higher local concentration of chromium. Thus, in order to obtain a more intensive adsorption of chromium on the surface of iron, the test samples must be placed into the chrome-plating mixture with the addition of ammonium iodide to the mixture. Orig. art. has: 1 figure, and several formulas.

2

ASSOCIATION: Odesskoye vyssheye inzhenernoye morskoye uchilishche (Higher
Marine Engineering School of Odessa)

SUBMITTED: 23May62 DATE ACQ: 12Jun63 ENCL: 00

SUB CODE: CH NO REF Sov: 009 OTHER: 007

Card 2/2

TITOV, V.K.

Distribution of radicelements in the supercrystalline formations
of the Aldan Shield. Trudy VSEGEI 95:155-161 '63.

(MIRA 17:11)

TITOV, V.K.

Graduation of EM-6 scintillation emanometers with Pu^{239}
preparations. Vop. rud. geofiz. no. 5:128-130 '65.

A review of the present state of surface radiometric methods
according to materials in the foreign press. Ibid. 1146-153
(MIRA 18:9)

L 3361-66 F: T(m)/FFF(c)/EWP(i)/EWA(a)/T/EWP(t)/EWP(z)/EWP(b) IJP(c) M.TW/JD/JG
ACC NR: AP5025601 UR/0129/65/000/010/0048/0050
621.785.53:542.944

AUTHOR: Titov, V. K.; Makarov, Ye. F.

46

TITLE: Chromizing of steel with the aid of ammonium halides

45
B

SOURCE: Metallovedeniye i termicheskaya obrabotka metallov, no. 10, 1965, 48-50

TOPIC TAGS: chromizing, halide, ammonium salt, atomic property, chromium steel, ferrochrome

ABSTRACT: Steel U10 was experimentally chromized in mixtures containing 40% ferrochrome + ammonium halides. The chromizing was performed in a nichrome container at 1100°C for 4 hr, with the amount of absorbed Cr being determined by the persulfate-silver method of Samsonov et al. (Analiz tugoplavkikh soyedineniy, Moscow, Metallurgizdat, 1962). Findings: The amount of absorbed Cr increases with increasing atomic weight of the halogen forming the ammonium halide; at the same time, the mean Cr concentration in the carbide layer (assuming that the entire Cr is concentrated in this layer and its density is 6.75 g/cm³) increases, as does the depth of this layer. Steel absorbs iron from the gaseous phase, because the activity of Fe in the carbide layer is lower than in the ferrochrome. Chromizing by direct pouring of active mixture (to which NH₄I is added) onto the specimens produces better results than placement of the specimens in a chamotte layer surrounded by the chromizing

Card 1/2

L 3361-66

ACC NR: AP5025601

mixture, because then we are dealing with the direct diffusion of Cr and Fe into the carbide layer of the steel in the presence of direct contact between the grains of ferrochrome and the surface of the specimen. Orig. art. has: 2 tables.

ASSOCIATION: none

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NO REF SOV: 006

OTHER: 001

2/2 DP

TITOV, V.K.

Analysis of chemical reactions taking place during steel
siliconizing based on the thermodynamic data. Zhur. prikl.
khim. 37 no. 4:768-773 Ap '64. (MIRA 17;5)

1. Odesskoye vyssheye inzhenernoye morskoye uchilishche.

TITOV, V.K.

Exchange factor as a characteristic of the mechanism of diffusion
metallizing. Izv. vys. ucheb. zav.; chern. met. 7 no.3:136-142
'64. (MIRA 17:4)

1. Odesskoye vyssheye inzhenernoye morskoye uchilishche.

TITOV, V.K.; MAKAROV, Ye.F.

Chromizing steel with the use of ammonium halides.
Metalloved. i term. obr. met. no.10:48-50 0 '65.

(MIRA 18:11)

DOBROGURSKIY, S.O.; TITOV, V.K.

[Calculating machines] *Schetno-reshaiushchie ustroistva.* Moskva, Gos.
izd-vo obor. promyshl., 1953. 222 p.
(Calculating machines) (MLRA 7:6)

DOBROGURSKIY, Sergey Osipovich, prof.; KAZAKOV, Vyacheslav Antipovich,
dotsent; TITOV, Viktor Konstantinovich, dotsent; PCHEL'NIKOV,
N.I., prof., doktor tekhn.nauk; retsenzient; PRESNUKHIN, L.N.,
prof., doktor tekhn.nauk, nauchnyy red.; BOGOMOLOVA, M.F.,
izdat.red.; ROZHIN, V.P., tekhn.red.

[Computing machines] Schetno-reshaiushchie ustroistva. Moskva,
Gos.izd-vo obor.promyshl., 1959. 463 p. (MIRA 12:8)
(Calculating machines)

Elements of Automatic Control Systems (Cont.)

8.	Thermocouples	15
9.	Tuning-fork sensing elements	15
10.	Ionization sensing elements	15
Ch. II.	Sensing Elements for Measuring Nonelectrical Quantities	42
1.	Elastic sensing elements	46
2.	Pressure sensing elements	48
3.	Piezoelectric sensing elements	62
4.	Magnetoresistive sensing elements	63
5.	Capacitance sensing elements	63
6.	Thermistors	63
7.	Ionization pressure sensing elements	64
8.	Thermocouple sensing elements	65
9.	Absorption sensing elements	65
10.	Floating and bell-type sensing elements	67
11.	Throttling sensing elements	67
12.	Hydrodynamic sensing elements	71
13.	Flow	71
14.	Anemometer sensing elements	76
15.	Electromagnetic sensing elements	78
16.	Ultrasonic sensing elements	82
17.	Calorimetric sensing elements	83
18.	Centrifugal sensing elements	83
19.	Thermometers	84
20.	Pressure thermometers	88
21.	Resistive and dilatometric sensing elements	89
22.	Thermocouple thermometers	91
23.	Theoretical sensing elements	92
24.	Radiation sensing elements	93
25.	Electrolytic sensing elements	93
26.	pH - measuring elements	104
27.	Gas analyzers	105
28.	Psychometric sensing elements	105
29.	Hygroscopic sensing elements	109
Ch. III.	Gyroscopic Sensing Elements and Accelerometers	111
1.	General information on gyro sensing elements	111
2.	Gyro variometers	117
3.	Course-indicating gyro systems	121
4.	Accelerometers	121
Ch. IV.	Transducers	143
1.	Contact transducers	157
2.	Potentiometers	157
3.	Dipolemeter transducers	158
4.	Electrolytic transducers	173
5.	Bolometric transducers	175
6.	Photoelectroic transducers	175
7.	Capacitance transducers	176
8.	Inductance transducers	178
9.	General information on solenoids	179
10.	Operation of solenoids with longitudinal and transverse components of current in the secondary	182
11.	Operation of a solenoid transmitter with a number of parallel-connected receivers	189
12.	Classification of static solenoids	197
13.	Operation of solenoids with synchro control transformers	199
14.	Telecrons and magnetrons	200
Ch. V.	Vacuum-tube and Semiconductor Modulators and Demodulators	214
1.	Function and basic characteristics of modulators and demodulators	216
2.	Modulators	216
3.	Demodulators	221
Ch. VI.	SECTION II. AMPLIFIERS	245
1.	Vacuum-tube, Transistor and Thyatron Amplifiers	258
2.	Vacuum-tube d-c amplifiers	258
3.	dc Voltage amplifiers	259
4.	dc Power amplifiers	259
5.	Transistor amplifiers	268
	Thyatron amplifiers	300
Ch. VII.	Magnetic Amplifiers	323
1.	Single-cycle magnetic amplifiers	326
		327

	Sov/2087
Elements of Automatic Control Systems (Cont.)	
2. Push-pull (reversible) magnetic amplifiers	357
3. Voltage amplifiers (magnetic modulators)	348
4. Multistage and polyphase amplifiers	350
5. Contactless magnetic relays	254
6. General information on the design of magnetic amplifiers	256
7. Determination of design parameters of magnetic amplifiers	268
8. Increases or magnetic amplifiers and methods of decreasing it	369
Ch. VIII. Dyanoelectric Amplifiers	375
1. Separately excited dyanoelectric amplifiers	376
2. Self-excited dyanoelectric amplifiers	378
3. Amplifiers	384
Ch. IX. Hydraulic and Pneumatic Amplifiers	413
1. Throttling hydraulic amplifiers	412
2. Jet-type hydraulic amplifiers	416
3. Throttling pneumatic amplifiers	462
4. Jet-type pneumatic amplifiers	470
SECTION III. CONTROL ELEMENTS	484
Ch. X. Control Elements Using DC Motors	484
1. General information	484
2. DC motor	500
3. Operation of a generator with a control motor as a load	508
4. Operation of an amplifier with a control motor as a load	510
5. Controlling the operation of a self-excited DC motor by varying the field	513
Ch. XI. Control Elements Using Two-phase Induction Motors	531
1. Operation of a two-phase induction motor	531
2. Systems of equations describing physical processes in a two-phase induction motor	534
3. Torque of a two-phase induction motor	540
4. Static characteristics of a two-phase induction motor and their use in determining parameters K_d , K_{d1} , K_{d2}	544
5. Effect of parameters of external circuits on static characteristics of a two-phase induction motor	548
6. Transfer function of a two-phase induction motor	553
7. Attenuation-frequency and phase-frequency characteristics of a two-phase induction motor	557
8. Passing an ac-amplitude-modulated signal through an element having a transfer function $G(p)$	563
9. Transfer function of an open-loop system using a two-phase induction motor for any $G(p)$	570
Ch. XII. Magnetic Control Elements Using Electromagnetic Clutches	573
1. Dry-friction electromagnetic clutches	574
2. Viscous-friction electromagnetic clutches	584
3. Electromagnetic slip clutches	595
4. Principles of operation and construction of a quick-response reversible electromagnetic clutch	597
Ch. XIII. Hydraulic and Pneumatic Control Elements	610
1. Hydraulic (servoactuators)	610
2. Hydraulic control elements	630
3. Pneumatic control elements	654
Ch. XIV. Servomechanisms and the Evaluation of Their Characteristics	673
1. Basic indices for evaluating servomechanisms	679
2. Speed of a servomechanism	679
3. Accuracy of a servomechanism	684
4. Additional indices for evaluating servomechanism characteristics	686
Bibliography	698
Index	720

TITOV, V.K.

Analysis of the operation of a.c. automatic control systems using
equivalent d.c. transfer functions. Avtom. upr. i vych. tekh.
no.5:120-150 '62. (MIRA 15:9)
(Automatic control)

KLUBNIKIN, Petr Fedorovich; TITOV, V.K., kand. tekhn. nauk, retsenzent;
AKIMOVA, A.G., red. izd-va; TIKHANOV, A.Ya., tekhn. red.

[Quick-acting induction clutches used in automatic control
systems] Bystrodeistvuiushchie induktsionnye myfty v siste-
makh avtomaticheskogo regulirovaniia. Moskva, Mashgiz, 1962.
218 p. (MIRA 15:3)
(Clutches (Machinery)) (Automatic control)

RUZSKIY, Yu.Ye., kand. tekhn. nauk; SOLODOVNIKOV, V.V., doktor
tekhn. nauk, prof.; TITOV, V.K., kand. tekhn. nauk; TUFCHYEYEV,
Yu.I., kand. tekhn. nauk; YELISEYEV, M.S., inzh., red.; MODEL',
B.I., tekhn. red.

[Principles of automatic control] Osnovy avtomaticheskogo up-
ravleniya. Moskva, Mashgiz. Vol.3. [Automatic controllers
and servo systems] Avtomaticheskie reguliatory i slediashchie
sistemy. 1963. 569 p. (MIRA 17:2)

AM4033667

BOOK EXPLOITATION

S/

Ruzskiy, YU. YE. (Candidate of Technical Sciences); Solodovnikov, V. V. (Doctor of Technical Sciences, Professor); Titov, V. K. (Candidate of Technical Sciences); Topcheyev, YU. I. (Candidate of Technical Sciences)

Principles of automatic control. v. 3: Automatic regulators and servomechanisms ("Osnovy" avtomaticheskogo upravleniya. t. 3: Avtomaticheskiye regulatory i sledyashchiye sistemy) Moscow, Mashgiz, 1963. 0659 p. illus., biblio., index. Errata slip inserted. 11,300 copies printed.

TOPIC TAGS: automatic control equipment, automatic regulation, servomechanism, hydraulic control, pressure control, electronic control

PURPOSE AND COVERAGE: The book considers automatic regulators and servomechanisms used in industry and contains typical diagrams, construction elements, main static and dynamic characteristics of these elements, and some features governing the choice of parameters of these regulators and servomechanisms and recommendations with respect to their use. Experimental dynamic characteristics are presented for most automatic regulators and servomechanisms. The book is intended for engineering-technical and scientific workers, instructors, and graduate or senior students

Card 1/3

AM4033667

engaged in automatic regulation and control. Chs. II, III, IV, and V were written by Candidate of Technical Sciences Yu. Ye. Ruzskiy. The introduction and Ch. I were written by Doctor of Technical Sciences V. V. Solodovnikov. Ch. VII was written by Candidate of Technical Sciences V. K. Titov. Chs. VI, VIII, IX were written by Candidate of Technical Sciences Yu. I. Topcheyev.

TABLE OF CONTENTS [abridged]:

Introduction - -	9
Ch. I. Control and regulation (principal concepts and definitions) - -	17
Ch. II. Hydraulic regulators - -	31
Ch. III. Pneumatic regulators - -	108
Ch. IV. Electric regulators - -	155
Ch. V. Electronic-hydraulic and electronic-pneumatic regulators - -	223
Ch. VI. Electric instrument-type continuous-action servomechanisms - -	251
Ch. VII. Ac. servomechanisms - -	351
Ch. VIII. Torque-type synchronous servomechanisms - -	422
Ch. IX. Electrohydraulic and electropneumatic servomechanisms of continuous action - -	540

Card 2/3

AM4033667

Literature -- 635
Sub. index -- 666

SUB CODE: IE SUBMITTED: 14Nov63 NR KEF SOV: 0278
OTHER: 0274 DATE ACQ: 06Apr64

Card 3/3

BUCHNEV, K.N., prof.; SHAKHMATOV, M.M., kand. veterinarnykh nauk; TITOV, V.L., nauchnyy sotrudnik; MEN'SHIKOV, L.F., nauchnyy sotrudnik; KRIVENKO, O.P., vrach-laborant; VOVK, V.I., vrach-laborant; LAISHEVA, M.M., vrach-laborant; POLUBOYAROVA, G.V., vrach-laborant

Diagnosis of rabies by precipitation reaction in agar gel.
Veterinariia 40 no.3:66-70 Mr '63. (MIRA 17:1)

1. Alma-Atinskiy zooveterinarnyy institut (for Buchnev).
2. Laboratoriya virusologii nauchno-issledovatel'skogo veterinarnogo instituta Kazakhskoy akademii sel'skokhozyaystvennykh nauk (for all except Buchnev).

OSTOSLAVSKIY, I.V., zasluzhennyy deyatel' nauki i tekhniki, doktor tekhnicheskikh nauk, professor; ITOV, V.M., kandidat tekhnicheskikh nauk; RODZEVICH, S.S., redaktor; LARIONOV, G.Ye., tekhnicheskiy redaktor

[Aerodynamical computations for aircraft] Aerodinamicheskii raschet samoleta. Moskva, Oborongiz, Glavnaia red. aviationsnoi lit-ry, 1947. 354 p. [Microfilm] (MIRA 9:11)
(Airplanes--Aerodynamics)

PHASE I BOOK EXPLOITATION SOV/4581

Leningrad. Glavnaya geofizicheskaya observatoriya

Voprosy dinamicheskoy meteorologii i teorii klimata (Problems in Dynamic Meteorology and the Theory of Climate) Leningrad, Gidrometeoizdat, 1958. 125 p. (Series: Its: Trudy, vyp. 76) Errata slip inserted. 1,300 copies printed.

Sponsoring Agency: Glavnaya geofizicheskaya observatoriya imeni A.I. Voyeykova; Glavnoye upravleniye gidrometeorologicheskoy sluzhby pri Sovete Ministrov SSSR.

Ed. (Title page): M.I. Yudin, Doctor of Physics and Mathematics; Ed. (Inside book): Yu.V. Vlasova; Tech. Ed.: M.Ya. Flaum.

PURPOSE: This issue of the Transactions of the Main Geophysical Observatory is intended for dynamic and synoptic meteorologists and climatologists. It may also be used by students of these fields.

COVERAGE: The collection of 9 articles deals with problems in dynamic meteorology, the theory of climate, and the forecasting of air temperature using elements of the thermohydrodynamic theory. A system of climatological regionalization for Card 1/3

Problems in Dynamic Meteorology (Cont.)

SOV/4581

the USSR is analyzed and recent pertinent data in this regard shown graphically. No personalities are mentioned. References follow each article.

TABLE OF CONTENTS:

Gandin, L.S., K.V. Pyatygina, R.I. Onikul, <u>V.M. Titov</u> , and Z.M. Shafran. Daily Variation of Temperature in the Lower Layers of Atmosphere	3
Dubov, A.S., and G.V. Stolyarova. Experience in Forecasting Temperature Using Hydrodynamic Methods	30
Dubov, A.S. Influence of Mountain Ranges on the Displacement of Cyclones	40
Kachurin, L.G. Relation Between Vertical Motions in the Atmosphere and the Intensity of Precipitation From Frontal Stratiformis Clouds	50
Gandin, L.S. Formation of Turbulent Motions in Fronts	61
Rakipova, I.R. Relation Between the Thermal Currents and Atmospheric Temperature Anomalies	82

Card 2/3

Problems in Dynamic Meteorology (Cont.)

SOV/4581

Zubenok, L.I., N.A. Yefimova, and V.V. Mukhenberg. Data for the Division of
the USSR in the Climatic Regions

93

Rozhdestvenskiy, A.A. Statistical Generalization of Mul'tanovskiy's
Phase Method on the Basis of Circulation Indices

113

Arrago, L.R. Method for Solving the Atmospheric Diffusion Equation

120

AVAILABLE: Library of Congress

Card 3/3

JA/dwm/gmp
12-16-60

TITOV, V.M.

Relation between variations in surface pressure and the
altitudes of isobaric surfaces of the lower troposphere.
Trudy GGO no.143:27-35 '63. (MIRA 17:2)

ACCESSION NR: AT4016870

8/2531/63/000/143/0027/0035

AUTHOR: Titov, V. M.

TITLE: The relationship between surface pressure and the heights of isobaric surfaces of the lower troposphere.

SOURCE: Leningrad. Glavnaya geofizicheskaya observatoriya. Trudy*, no. 143 1963, Voprosy* chislennogo prognoza i struktura meteorologicheskikh poley, (Problems in numerical forecasting and structure of meteorological fields). 27-35

TOPIC TAGS: meteorology, atmospheric pressure, isobaric surface, troposphere, lower troposphere, surface pressure, regression function, weather forecasting.

ABSTRACT: A study has been made to determine the statistical relationships between the temporal change of surface pressure and the heights of the 850 and 500 millibar isobaric surfaces. Multiple regression functions are used to determine future values of surface pressure. The problem reduces to finding the coefficients a, b and c in the multiple regression equation

$$\delta p = a + b\delta H_5 + c\delta H_{8.5} \quad (1)$$

where δp are the 1-day or 2-day changes in surface pressure; δH_5 and $\delta H_{8.5}$ are

Card 1/43

MAIN GEOPHYSICAL OBSERVATORY

ACCESSION NR: AT4016870

the analogous changes in the height of the 500- and 850-mb surfaces. The coefficient b characterizes the relationship between the change of AT500 and surface pressure, c — the relationship between AT850 and surface pressure. Regression equations are written separately for continental and ocean areas (Europe and Atlantic Ocean). A "Ural-1" computer was employed. The following formulas, derived by the least squares method, were used in programming:

$$\begin{aligned}
 D &= [\overline{\delta H_5 \delta H_{5,5}} - \overline{\delta H_5} \overline{\delta H_{5,5}}]^2 - [\overline{\delta H_5^2} - \overline{\delta H_5}] [\overline{\delta H_{5,5}^2} - \overline{\delta H_{5,5}}] \\
 D_1 &= [\overline{\delta H_5 \delta H_{5,5}} - \overline{\delta H_5} \overline{\delta H_{5,5}}] \overline{\delta H_5 \delta p} - \\
 &\quad - [\overline{\delta H_5^2} - \overline{\delta H_5}] \overline{\delta H_{5,5} \delta p} + [\overline{\delta H_{5,5} \delta H_5^2} - \overline{\delta H_5} \overline{\delta H_5 \delta H_{5,5}}] \overline{\delta p} \\
 D_2 &= [\overline{\delta H_5 \delta H_{5,5}} - \overline{\delta H_5} \overline{\delta H_{5,5}}] \overline{\delta H_{5,5} \delta p} - \\
 &\quad - [\overline{\delta H_{5,5}^2} - \overline{\delta H_{5,5}}] \overline{\delta H_5 \delta p} - [\overline{\delta H_{5,5} \delta H_5^2} - \overline{\delta H_5} \overline{\delta H_5 \delta H_{5,5}}] \overline{\delta p} \\
 D_3 &= [\overline{\delta H_{5,5}^2} \overline{\delta H_5} - \overline{\delta H_5} \overline{\delta H_{5,5}}] \overline{\delta H_{5,5} \delta p} - \\
 &\quad - [\overline{\delta H_5 \delta H_{5,5}} \overline{\delta H_5} - \overline{\delta H_5} \overline{\delta H_5 \delta H_{5,5}}] \overline{\delta H_{5,5} \delta p} - \\
 &\quad - [\overline{\delta H_5 \delta H_{5,5}} \overline{\delta H_5} - \overline{\delta H_5} \overline{\delta H_5 \delta H_{5,5}}] \overline{\delta p} \quad (2)
 \end{aligned}$$

Card 2/4

ACCESSION NR: AT4016870

The required coefficients were found using the relations:

$$a = \frac{D_3}{D}, \quad b = \frac{D_2}{D}, \quad c = \frac{D_1}{D}. \quad (3)$$

Data for the continent were taken from synoptic charts at 110 points on a regular grid. The initial data were for AT500, AT850 and the surface for 10 days of the middle month of each season. The actual changes of surface pressure and the 500- and 850-mb surfaces for 24- and 48-hour periods were computed. A far less perfect grid was available for the ocean area. The regression coefficients were determined using formulas (2) and (3). Tables give the regression coefficients a, b and c for individual days, their mean values, mean square deviation and maximum and minimum values. There is a stable relationship between changes at the surface and at the 850-mb level. Comparison of the mean square deviation and mean 10-day value of c shows that it varies little from day to day and season to season. In both cases the variability of c over the ocean is somewhat greater than over land. The coefficient b varies greatly from day to day and season to season. There is no reliable relationship between pressure at the surface and at the 500-mb level. The coefficient a (a free term) changes considerably from day to day and season to season. Orig. art. has: 2 figures, 3 formulas and 5 tables.

Card 5/4

VASIL'IEV, O. F. ; PRITVITS, N. A. ; TITOV, V. M.

Some hydronamic calculations relating to methods for controlling
larvae of blood-sucking midges in rivers. Izv. Sib. otd. AN SSSR
no. 8:124-134 '60.
(MIRA 13:9)

1. Institut gidrodinamiki Sibirskogo otdeleniya AN SSSR.
(Insecticides)

TITOV, V.N., inzhener.

The TR-4 tractor leader for inert materials. Strei. i der.mashinestr.no.7:
30-32 Jl '56. (Industrial power trucks) (MLRA 9:10)

TITOV, V.N., inzhener.

Modernizing the D-182A concrete finishing machine. Stroi. i dor.
mashinostr. 2 no.6:19-21 Je '57. (MLRA 10:6)
(Pavements, Concrete)

KOVYGIN, Yu. Ya.; SURKOV, G. V.; TITOV, V. N.

Composite suspension of vibratory hoppers and hoists. (Lean. 1
instr. 35 no. 5:25-27 My '64. (Min. 17:7)

KHOMULLO, G.V.; TITOV, V.N.

Morphological functional changes in some endocrine organs
under the influence of dicoline. Probl. endok. i gorm. 11
no.2:89-93 Mr-Ap '65. (MIRA 18:7)

1. Kafedra obshchey biologii (zav. - dotsent G.V.Khomullo) i
kafedra gospital'noy terapii (zuv. - prof. I.B.Shulutko)
Kalininskogo meditsinskogo instituta.

REVIS, V.A.; TITOV, V.N.

Protein metabolism of the liver and kidneys in acute radiation sickness according to histautoradiography data. Med. rad. 9 no.11:54-61 N '64. (MIRA 18:9)

1. Klinika fakul'tetskoy khirurgii (zav.- prof. V.S. Semenov) Kalininskogo meditsinskogo in-ta i Oblastnaya klinicheskaya bol'ница.

L 63586-65 EPR(s)/EPR/EPA(s)-2/EPR(1)/EPA(1m)/P/EPR-4) Ps-1/Ps-1/Ps-1
ACCESSION NR: AT5002671 10 S/0000/64/000/000/0167/0170

AUTHOR: Titov, V. N.; Tverdokhleb, L. L.

TITLE: Glass-reinforced plastics with high strength

SOURCE: AN UkrSSR, Institut khimii vysokomolekulyarnykh soyedineniy. Sintez i fiziko-khimiya polimerov; sbornik statey po rezul'tatam nauchno-issledovatel'skikh rabot (Synthesis and physical chemistry of polymers; collection of articles on the results of scientific research work). Kiev, Naukova dumka, 1964, 167-170

TOPIC TAGS: glass plastic, glass reinforcement, wheel winding, glass tape, wheel reinforcement, fiberglass

ABSTRACT: The authors report the results of studies of various methods of preparing glass-reinforced plastics with an ultimate strength of up to 17,170 bar. The samples were tested in the form of wheels with a rectangular cross section, made out of alkali-free Steklonit No. 40 with EPR-4 binder and reinforced with various types of fiberglass winding. The nature of wheel destruction under compressive loads is discussed in relation to the type of winding. Tests of more than 110 samples, the average strength of which was 15,800 bar, showed

Card 1/2

L 63586-65

ACCESSION NR: AT5002671

that maximal wheel strength is obtained if the axis of the reinforcing fibers is at an angle of $\pi/2$ radians to the angle of rotation of the wheel (in this way, the reinforcing fibers lie in the plane of the load). The average strength of 25 wheels wound with 3 layers of fiberglass tape, either the same width as the wheel or 1-1.25 mm in width, was 17,170 bar, and the wide tape proved more durable. Wheels can also be reinforced effectively by transverse winding.
Orig. art. has: 3 figures.

ASSOCIATION: Institut mekhaniki AN UkrSSR (Mechanics Institute, AN UkrSSR)

SUBMITTED: 22 Jun64

ENCL: 00

SUB CODE: MT

NO REF Sov: 002

OTHER: 001

Card 2/2

TITOV, V. N.

Astrometry

Dissertation: "Simple Tuning Quartz Clock." Cand Tech Sci, All-Union
Res Inst of Metrology, Leningrad, 1953. (Referativnyy Zhurnal--Astronomiy, Moscow, Mar 54)

SO: SUM 213, 20 Sept 1954

APPROVED FOR RELEASE: 07/16/2001

CIA-RDP86-00513R001755910006-7"

Titov V. N.

USSR/General Problems - Method and Technique of Investigation

A-4

Abst Journal : Referat Zhur - Fizika, No 12, 1956, 33681

Author : Bryzhayev, L. D., Titov, V. N.

Institution : None

Title : Experimental Specimen of Underground Quartz Group Frequency Standard Using Transistors

Original

Periodical : Izmerit. Tekhnika, 1955, No 1, 23-24

Abstract : A 60 kc standard frequency oscillator is built, using type KSV-3 transistors. The quartz element of the oscillator is a slab of square cross section, carrying out longitudinal oscillations at the second harmonic. The Q of the quartz element is approximately 300,000. The oscillator is fed from a dry cell and the voltage is stabilized by a standard cell operating under buffer conditions. A group of 4 identical oscillators is mounted in a special metallic shell 1.4 mm long and 90 mm in diameter, which is lowered in an underground well at a depth of 25 m. The mean-squared values of the daily variations of the relative deviations from the mean frequency value did not exceed 1.0×10^{-9} .

Card 1/1

11/1/04 8/1
BRYZZHEV, L.D.; GRINENKO, I.V.; NOVGORODOV, Ye.D.; TITOV, V.N.

Piezoelectric tuning forks. Izm. tekhn. no.1:46-51 Ja-F '55.
(Piezoelectricity) (MLRA 8:9)

TITOV, V.N.

An electronic reductor for producing sidereal time frequencies.
Izm. tekhn. no.2:26-28 Mr-Ap '55. (MIRA 8:9)
(Electronic measurements) (Time--Measurement)

BRYZZHEV, L.D.; TITOV, V.N.

Experimental model of the underground quartz crystal-triode
frequency standard. Izm.tekh. no.1:23-24 Ja-F '56. (MLRA 9:5)
(Frequency measurements)

TITOY, V.N.

Instrument for precise comparison of frequencies having a
value ration close to an integer. Izm.tekh.no.1:76-77 Ja-
'57. (MIRA 10:4)
(Electronic instruments) (Frequency measurements)

TITOV, V.N.

24(0); 5(4); 6(2) PHASE I BOOK EXPLOITATION SOV/2215
 D.I. Mandel'yeva
 Reprint nauchno-issledovatel'skiy institut metrologii imeni
 Research Abstracts; Collection of papers; Abornik No. 2 (Scientific
 Standards); 1958. 139 p. 1,000 copies printed.

Additional Sponsoring Agency: USSR. Komitet standartov, mer 1
 imeritei'nykh priborov.

Ed.: S. V. Reshetina; Tech. Ed.: N. A. Kondrat'yeva.

PURPOSE: These reports are intended for scientists, researchers, and engineers engaged in developing standards, measures, and coverages for the various industries.

COVERAGE: The volume contains 168 reports on standards of measurement and control. The reports were prepared by scientists of priboirod. pri. Sovetsk Ministerstvo SSSR (Commission on Standards, Measures, and Measuring Instruments under the USSR Council of Ministers). The participating institutes under the USSR Council of Vsesoyuzny nauchno-issledovatel'skiy metrologii imeni D.I. Mandel'yeva (All-Union Scientific Research Institute of Metrology) in Leningrad; Sverdlovsk branch of this institute; VNIIM - Vsesoyuzny nauchno-issledovatel'skiy (All-Union Scientific Research Institute of Metrology) in Nizhny Novgorod; mer 1.2m radio-telemetric branch on Standards, Measures, and Measuring Instruments of the Commission from MOLMIP; Koskovskiy Gosudarstvennyy Institut mer 1 and Measuring Instruments (Moscow State Institute mer 1 and Measuring Instruments) October 1, 1955; VNIIFTRI - Vsesoyuzny nauchno-issledovatel'skiy (All-Union Scientific Research Institute of Physical Chemistry and Radio-Engineering Measurements) in Moscow; KhGIUP - Khar'kovskiy Gosudarstvennyy Institut mer 1.1m radio-telemetric priborov (Khar'kov State Institute of Measures and Measuring Instruments); and NOLMIP - Novosibirsk State Institute of Measures and Measuring Instruments (Novosibirsk). No personnel lists are mentioned. There are no references.

TovchiSchenko, S.S. (VNIIM). Studying Recurrent Errors of Solar-Yara, L.A. (VNIIM). Studying the Curvature of the Tube
 of Leaves 45
 Brzhezhev, L.D.; V.P. Lubentsov, S.M. Okhotina, and P.A. Sipan' on
 Produced by the KhGIUP Standard Frequency Unit to 10¹⁰ Cycles
 Search, A.G. (VNIIFTRI). Quartz Resonator With a Quality Factor
 of 22.5 ± 10⁶ (VNIIFTRI). 47
 Chirkov, T.Y., Ye.D. Novgorodov, N. N. Negandze, T.S. Dumanov,
 Yu. A. Labin, and N. D. Samoylova (VNIIFTRI). Developing Quartz
 Elements of Oscillators and Convertores 48
 Brzhezhev, L.D.; M.D. Sushchikov, V.N. Titov, P.P. Yestaf'yev,
 and V.I. Surenko (KhGIUP). Developing and Studying Simple,
 Suitable Oscillators and Convertores of High Stability for Time and
 Frequency service. 49

Card 10/27

KLYUMEL', M.Z.; TITOV, V.N.

Determining the frequency of a not absolutely harmonic process
in connection with the measurement of frequencies of highly
stable oscillators. Trudy inst.Kom.stand., mer i ism.prib.
no.59:7-10 '62.

(Frequency measurements) (MIRA 16:1)

TITOV, V.N.

Spectral clearness of the output signal of a two-stage frequency
multiplier. Trudy inst.Kom.stand., mer i izm.prib. no.59411-15
'62. (MIRA 16a1)
(Frequency multipliers)

KLYUMEL', M.Z.; TITOV, V.N.; YELKIN, G.A.

Methods for immediate production of accumulated and differentiated frequencies. Trudy inst.Kom.stand., mer 1 izm.prib, no.59:16-17
'62. (Frequency changers) (MIRA 16:1)

TITOV, V.N.

Effect of noises on the frequency instability of quartz
oscillators. Trudy inst.Kom.stand., mer i izm.prib. no.59;
84-93 '62. (MIRA 16:1)
(Oscillators, Crystal—Noise)

L 27/09-65 FBD/EWT()/EEC-L/EEC() Pe-5/Pi-4/Pse-2 0W/W3
ACCESSION NR: AP5009354

8/0109/65/016/002/0364/0367 48

29

B

15

AUTHOR: Rzhiga, O. N.; Slobodenyuk, G. I.; Titov, V. N.; Trunova, Z. G.

TITLE: Decimeter-band radiometer and measurement of radiation from Jupiter

SOURCE: Radiotekhnika i elektronika, v. 10, no. 2, 1965, 364-367

TOPIC TAGS: planetary radiation, radiation measurement, radiometer, modulator, radiometer, radiation flux /Virgo A, Jupiter

ABSTRACT: Measurements of 700-Mc radiation intensity from Jupiter were made in October 1963 with a modulated radiometer. The antenna system consisted of two identical antennas oriented in the same direction with their feed connected through a double T-joint. The outputs of the latter were alternately connected to the receiver through an antenna switch. A square-law detector, a modulation-frequency multiplier (passband, 10 cps) a synchronous detector with silicon diodes (4000 cps), a d-c amplifier, and a recorder made up the basic equipment. (See Fig. 1 for block diagram.) To eliminate spurious signals, rectangular modulating voltage was applied to the grid of an i-f tube of the amplifier. The radiometer was calibrated with a noise generator; its fluctuation spectrum was flat at the frequency of 700 Mc.

Card 3/3

L 27409-65

ACCESSION NR: AP5005354

stant of 15 sec. The intensity of radiation received from Jupiter was determined from a standard noise signal calibrated by means of the solar filter A. The radiation flux density and spectral index of filter A at 90 cps, $30 \times 10^{-10} \text{ w/m}^2 \text{ cps}$ and -0.72) were adjusted to the frequency of the measurements. The equivalent temperature was determined as $10,100^\circ \text{ Kelvin}$. The results of the observations confirm the pattern found in earlier measurements at other wavelengths and 3 formulas

ANALYST: N. Institut radio-technique i n i n g i n i k i A N S S R (Institute of Radio-
Engineering and Electronics, AV ~~SSSR~~)
SUBMITTED: 24Feb64

ENCLOSURE: 01

NO REF SOV: 002

SUB CODE: AG FL

ALL PREGS, 2102

Card 2/3

2400JL-68

EWP(e)/EWT(m)

WH

ACC NR: AR6017178

SOURCE CODE: UR/0058/65/000/012/A017/A017

AUTHOR: Titov, V. N.

TITLE: On the development of work on the measurement of time and frequency in the ⁴⁰
SSSR ^B

SOURCE: Ref. zh. Fizika, Abs. 12A187

REF SOURCE: Tr. in-tov Gos. kom-ta standartov, mer i izmerit. priborov SSSR. vyp.
76(136), 1965, 180-183TOPIC TAGS: scientific standard, metrology, time measurement, ¹⁵quartz clock, elec-
tronic research facilityABSTRACT: The author reports work done on the construction of quartz clocks and also
molecular and atomic frequency standards, connected with the creation and maintenance
of time and frequency standards; work on astronomical observations aimed at dupli-
cating the time scale (TU₂ and ephemerides). It is shown that molecular and atomic
standards with a group of quartz generators constitute the VNIIFTRI group mainainer
of time and frequency, the errors of which are at the presently attainable levels of
modern technology and metrology. It is noted that the institutes of the State Com-
mittee on Standards, Measures, and Measuring Instruments are engaged in the creation
and introduction of various types of model apparatus for the measurement of time and
frequency. Yu. Vaysberg [Translation of abstract]

SUB CODE: 20

Cord 1/1 *Sp*

L 44679-66 EWT(m)
ACC NR: AP6005361

SOURCE CODE: UR/0413/66/000/001/0106/0106

AUTHORS: Belov, Ye. M.; Gorodilov, V. M.; Minayev, I. G.; Titov, V. N.

ORG: none

TITLE: Ionization pulse gas analyzer / detector. Class 42, No. 177681 [announced by Tomsk Polytechnic Institute of the Order of the Workers' Red Banner (Tomskiy ordena trudovogo krasnogo znameni politekhnicheskiy institut)]

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 1, 1966, 106

TOPIC TAGS: gas analyzer, gas composition analyzer, gas ionization

ABSTRACT: This Author Certificate presents an ionization pulse gas analyzer detector containing a chamber with two coaxial electrodes. An ionization source, e.g., an α -emitter, is located inside the chamber. To increase the sensitivity of the detector to electronegative gases (e.g., oxygen in argon), the ionization source is located at the bottom of an annular slot in the insulating end cover of the chamber (see Fig. 1).

Card 1/2

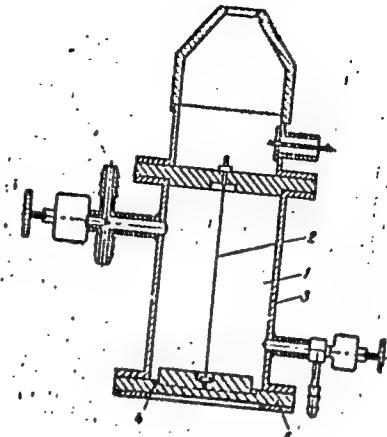
UDC: 543.51.08

L 44679-66

ACC NR:

AP6005361

Fig. 1. 1 - chamber; 2 and 3 - coaxial
electrodes; 4 - ionization source;
5 - end cover



Orig. art. has: 1 diagram.

SUB CODE: 07/26 SUBM DATE: 22Dec64

Card 2/2

hs

ACC NR: AT6020230

(N)

SOURCE CODE: UR/2589/65/000/077/0005/0015

AUTHOR: Titov, V. N. (Candidate of technical sciences)

ORG: none

TITLE: Development, manufacture, and investigation of quartz clocks of VNIIFTRI

SOURCE: USSR. Komitet standartov, mer i izmeritel'nykh priborov. Trudy institutov Komiteta, no. 77(137), 1965. Issledovaniya v oblasti izmereniya vremeni i chastoty (Research in the field of time and frequency measurement), 5-15

TOPIC TAGS: quartz clock, quartz, quartz crystal, time, time measurement

ABSTRACT: This paper is a review of the development, manufacture, and performance of a number of quartz clocks installed in 1961 by VNIIFTRI. The quartz clock installations are discussed under the following headings: 1) quartz generators and thermostats; 2) schemes for continuous (integral) frequency comparisons; 3) frequency dividers; 4) installations insuring uninterrupted voltage supply; 5) auxiliary equipment. Each chapter contains several block diagrams illustrating the various types of equipment used. The performance of the clocks was compared with the time signals of the British radio station GBR. It was found that the diurnal frequency variation of the generators was on the order of a few units of 10^{-11} . A. N. Smirnov, N. V. Nikitin, S. V. Shustrov, and employees of VNIIFTRI participated

UDC: 621.373.5.08:529.786

Card 1/2

ACC NR: AT6020230

in the construction of the quartz clocks. Orig. art. has: 1 table, 7 graphs, and 11 equations.

SUB CODE: 09, 11, 14/ SUBM DATE: --Feb62

Card 2/2

TITOV, V.N.

[In the struggle for technological progress; work practices of a provincial party organization] V bor'be za tekhnicheskii progress; iz opyta raboty oblastnoi partinoi organizatsii, Kiev, Gospolitizdat USSR, 1960. 96 p. (MIRA 14:12)

(Technological innovations)

(Kharkov Province--Communist Party of the Soviet Union--Party work)

TITOV, Vitaliy Nikolayavich [Titov, V.M.]; BABENKO, V.G. [Babenko, V.H.],
red.; LIMANOVA, M.I. [Lymanova, M.I.], tekhn.red.

[For the further economic development of Kharkov Province] Za
dal'sha pidnesennia ekonomiky Kharkivshchyny. Kharkiv, Kharkiv'ske
knyzhkove vyd-vo, 1959. 45 p. (MIRA 13:4)

1. Sekretar Kharkiv'skogo obkonn KP Ukrainsi (for Titov).
(Kharkov Province--Economic conditions)

TITOV, V.N.; MIKHAYEVICH, N.A., red.; LIMANOVA, M.I., tekhnicheskiy red.

[Kharkov region on the eve of the fortieth anniversary of the Great October Revolution] Khar'kovshchina nakanune sorokaletiia Velikogo Oktiabria; materialy v pomoshch' propagandistam i agitatoram. [Khar'kov] Khar'kovskoe obl.izd-vo, 1957. 89 p. (MIRA 11:4)

1. Sekretar' Khar'kovskogo obkome Kommunisticheskoy parti i Ukrayny
(for Titov)
(Kharkov Province--Economic conditions)

PHASE I BOOK EXPLOITATION SOV/5452

Donskoy, Ya. Ye., G.I. Kardash, and I.P. Lyalyuk, eds.

Mekhanizatsiya i avtomatzatsiya; sbornik statey ob opyte vnedreniya mekhanizatsii i avtomatzatsii na khar'kovskikh mashinostroitel'nykh zavodakh (Mechanization and Automation; Collection of Articles on the Introduction of Mechanization and Automation in Khar'kov Machinery-Manufacturing Plants) [Khar'kov] Khar'kovskoye knizhnoye izd-vo, 1960. 373 p. 3,900 copies printed.

Editorial Board: S.A. Vorob'yev, Candidate of Technical Sciences; Chairman of the Editorial Board: P.I. Zmaga, Engineer; A.A. Katlov, Engineer, V.I. Kuzubov, Engineer, A. Ye. Leonov, Docent, A.I. Tupitsyn, Candidate of Technical Sciences, and S.M. Khmara, Candidate of Technical Sciences; Eds.: Ya. Ye. Donskoy, G.I. Kardash, and I.P. Lyalyuk; Tech. Ed.: M.I. Limanova.

PURPOSE: This collection of articles is intended for technical and scientific personnel, outstanding workers, and shock workers of communist labor.

COVERAGE: The multifaceted experience of Khar'kov enterprises in the mechanization, automation, and improvement of manufacturing processes is generalized.

Card 1/8

Mechanization and Automation (Cont.)

SOV/5452

The development of new machines, instruments, and production methods is considered and attention is given to newly established enterprises, and to the introduction of telemechanics in the Khar'kov gas-system management. By including concrete examples and facts, the authors of the various articles attempt to demonstrate the achievements of the Khar'kov industrial complex in fulfilling the resolutions of the June (1959) and July (1960) Plenums of the Central Committee of the Communist Party of the Soviet Union. No personalities are mentioned. There are no references.

TABLE OF CONTENTS:

Titov, V.N. [First Secretary of the Khar'kov Oblast Committee of the Communist Party of the Ukraine]. Increasing the Tempo of Technological Progress by All Possible Means 3

Malyarov, F.M. [Chief Engineer at the zavod imeni Malysheva--Plant imeni Malyshev], and A.I. Isayev [Chief Process Engineer of the plant]. The Mechanization and Automation of Manufacturing Processes 22

Karas', L.M. [Chief Process Engineer of the "Serp i Molot" Plant]. Automatic [Production] Lines 42

Card 2/8

Mechanization and Automation (Cont.)

SOV/5452

Seleznev, L.P. [Deputy Chief Engineer of the Khar'kovskiy Traktornyj Zavod -- Khar'kov Tractor Plant imeni Ordzhonikidze], and V.V. Biblik [Chief Process Engineer of the plant]. Mechanization and Automation in a Tractor Plant

60

Shubenko-Shubin, L.A. [Corresponding Member of the Academy of Sciences of the UkrSSR, Chief Designer of the Khar'kovskiy turbinnyj zavod -- Khar'kov Turbine Plant]. The Development of Steam-Turbine Building at the Khar'kov Turbine Plant imeni Kirov

79

Berezin, S.I. [Chief Engineer of the Khar'kov Turbine Plant imeni Kirov], and V.A. Noskov [Deputy Chief Process Engineer]. Experience in Mechanization and Automation

101

Naydenov, V.N. [Chief Engineer of the Khar'kovskiy elekromekhanicheskiy zavod -- Khar'kov Electromechanical Plant], and N. Ya. Polisskiy [Deputy Chief Plant Engineer]. Full Mechanization and Automation at the KhEMZ

117

Card 3/8

Mechanization and Automation (Cont.)

SOV/5452

Zel'vyanskiy, F.B., and M.G. Vishnevskiy [Engineers]. The Experimental Model Shop of the Khar'kovskiy podshipnikovyy zavod (Khar'kov Bearing Plant)

128

Stepanov, S.F. [Deputy Chief Engineer of the Khar'kovskiy stankozavod -- Khar'kov Machine-Tool Plant], and I.T. Frantsuzov [Chief Designer]. Automatic and Semiautomatic Grinding Machines

141

Kas'yanov, O.N., S. Ye. Shvartsman, and I.N. Zil'berberg [Engineers]. Automatic Unit-Head Machine Tools

158

Mangubi, V.A., and V.G. Kovalenko [Engineers]. What is Accomplished at the "Elektrostanok" Plant

174

Korkhov, P.K. [Chief Engineer of the KhELZ]. Automatic [Production] Lines for Stamping Stator and Rotor Sheets

181

Zil'ber, A.G. [Chief Process Engineer of the "Svet shakhtera" Plant]. For Mechanization in Coal Mining

197

Card 4/8

Mechanization and Automation (Cont.)

SOV/5452

Radchenko, S.G. [Chief Engineer of the Khar'kovskiy velosipednyy zavod--Khar'kov Bicycle Plant]. Mechanization and Automation in Bicycle Manufacturing 207

Yuzefov, V.I. [Chief Engineer of the "Yuzhkabel" Plant]. Experience in Technological Progress 225

Trinchenko, P.S. [Director of the "Krasnyy Oktyabr" Plant]. We Are Improving Machine Quality 232

Kucherov, P.M. [Director of the Khar'kovskiy zavod konditsionerov -- Khar'kov Conditioner Plant]. New Technology in the Building of [Air] Conditioners 239

Belostotskiy, A.P. [Director of the "Porshen" Plant]. Carburizing Steel Parts With Natural Gas 251

Card 5/8

SOV/5452

Mechanization and Automation (Cont.)

Ulischenko, F.U. [Chief Engineer of the Khar'kovskiy zavod torgovogo mashinostroyeniya -- Khar'kov Commercial Machine-Building Plant]. The Mechanization and Automation of Labor-Consuming Processes

261

Markin, V.D. [Secretary of the Comintern Rayon Committee of the Communist Party of the Ukraine]. The Party Organization in the Struggle for Technological Progress

268

Chervov, V.G. [Director of the Division of Science and Culture of the Oblast Committee of the Communist Party of the Ukraine]. The Scientists of Khar'kov -- [Their Contributions] to Production

279

Semko, M.F. [Director of the Khar'kovskiy politekhnicheskiy institut imeni V.I. Lenina -- Khar'kov Polytechnical Institute imeni V.I. Lenin; Professor]. Strengthening and Broadening Creative Collaboration Between Scientific and Production Workers

287

Didenko, K.I. [Chief Designer of the Khar'kov Plant KIP]. A New Apparatus for the Automation of Manufacturing Processes

298

Card 6/8

Mechanization and Automation (Cont.)

SOV/5452

Savchenko, V.A. [Candidate of Technical Sciences], and V.I. Trubilko [Engineer]. Manual and Semiautomatic Electroslag Welding 317

Tsekov, V.I. [Candidate of Technical Sciences], and P.G. Kofman [Engineer] [Institut inzhenerov kommunal'nogo stroitel'stva -- Institute of Municipal-Construction Engineers]. The Mechanization of Operations in Trolley-Bus Repair 326

Ivaschenko, V.I., I.F. Marov, D.P. Gramotenko, and M.A. Duel' [Engineers]. Technological Progress in the Khar'kov Power System 340

Svet, I. Sh. [Engineer, Tractor Plant imeni S. Ordzhonikidze]. Automating the Pressworking of Parts, With High-Frequency Induction Heating 359

Venediktov, N.A. [Chief Engineer for the Upravleniye gazovogo khozyaystva -- Administration of the Gas Supply Service]. The Application of Telemechanics in the Khar'kov Gas Supply Service 368

Card 7/8

Mechanization and Automation (Cont.)

SOV/5452

Tumanov, A.G. [Chief of the Administration of the Gas Industry
of the Khar'kov Sovnarkhoz]. The Introduction of New Technology
and Processes in Gas Production

371

AVAILABLE: Library of Congress (TJ1160.M395)

Card 8/8

VK/wrc/mas
8-10-61

TITOV, V.N.; BABENKO, V.M.

Basic structural characteristics of the Northern Kantau deposit
in the Kansay ore province. Geol. rud. mestorozh. no.2:109-112
(MIRA 14:5)
Mr-Ap '61.

1. Institut tsvetnykh metallov im. M.I.Kalinina i Kansayskoye
rudopravleniye.
(Kara-Mazyr Mountain—Geology, Economic)

TITOV, V.N.

Characteristics of the geological structure and the primary dispersion aureoles of the Okurdevan lead-zinc deposits. Izv. vys. ucheb. zav.; tsvet. mat. 4 no. 1:5-16 '61. (MIA '4:2)

1. Krasnoyarskiy institut tsvetnykh metallov, kafedra mestorozhdeniy poleznykh iskopayemykh.
(Tajikistan--Ore deposits) (Nonferrous metals)

TITOV, V.N.

Geology of the Shevchukovskoye deposit in the Kansay ore
field. Geol. rud. mestorozh. 5 no.6:101-104 N-D'63.
(MIRA 17:5)

1. Gosudarstvennyy nauchno-issledovatel'skiy institut
gornokhimicheskogo syr'ya, g. Lyubertsy, Moskovskoy obl.

ZAVOROTNYKH, I.R.; TITOV, V.N.

Geology of the deposits of the Pukrovsko-Surdelevskoye ore field.
Trudy IGEM no.83:238-264 '63. (MIRA 16:11)

AUTHOR:

Titov, V. N.

SOV/89-5-2-20/36

TITLE:

All-Union Universities' Conference on Electron Accelerators
(Vsesoyuznaya mezhvuzovskaya konferentsiya po elektronnym
uskoritelyam)

PERIODICAL: Atomnaya energiya, 1958, Vol. 5, Nr 2, pp. 189-191 (USSR)

ABSTRACT:

A conference on electron accelerators took place from February 15 to February 20, 1958 at the Polytechnic Institute of Tomsk (TPI). More than 50 Higher Technical Schools and Research Institutes attended this conference. 146 lectures were held in plenary- as well as in sectional sessions. The construction of the Transformer Factory of Moscow (MTZ) concerning special betatrons (medical- and γ -defectoscopy) were discussed during the first plenary session.

Section: Electron Accelerators for Low Energies.

A discussion was held on some theoretical and experimental investigations which aim at improvement of industrially produced betatrons. A large number of lectures was devoted to the construction of electromagnets and electrical wiring diagrams. A report is given on the following details: Betatrons having an intensity of

Card 1/3

All Union Universities' Conference on Electron Accelerators

SOV/89-5-2-20/36

up to 300 r/min.m. (Current frequency 150 kilocycles).
Impulse scheme for a 25 MeV-betatron.
Impulse transformer having a transformation coefficient 10.
Development of a betatron model for 7-8 MeV of the smallest possible measurements to be used in drill holes.
The lectures held on problems of radiation emission from betatrons showed that all questions connected with this problem are solved.
With respect to the production sector it must be mentioned that an output of fused-off betatron chambers having a life of 1 000 hours may be expected within the near future.
Section for the Application of Electron Accelerators in Industry, Physics, Medical Science, and Biology.
In the field of medicine a report on the influence of 10, 15 and 25 MeV- γ -radiation exercised upon the regeneration capability of the skin was delivered. Some works dealing with radiation diseases are worth mentioning.
 γ -defectoscopy with betatrons is, as may be seen from lectures, becoming more and more accurate and can be used for steel plates

Card 2/3

All Union Universities' Conference on Electron Accelerators

SOV/89-5-2-20/36

of increased thickness.

Some lectures dealt with the application of particle accelerators in industrial geophysics.

Theoretical Works:

In this field especially such problems were discussed as are connected with electron capture during acceleration. The theory of electrostatic interaction is apparently confirmed. Further discussions dealt with focusing.

A report is also given on the theory and construction of a new type of accelerator for exceptionally high energies.

Card 3/3

NOV/3-58-11-32/38

AUTHORS: Vorob'yev, A.A., Professor, and Titov, V.N., Docent

TITLE: This Was Done in a Vuz (Eto udeleno v vuze). The Betatrons of the Tomsk Polytechnical Institute (Betatrony Tomskogo politekhnicheskogo instituta)

PERIODICAL: Vestnik vysshey shkoly, 1958, Nr 11, pp 80 - 81 (USSR)

ABSTRACT: Last year, a betatron, radiating energy to a maximum of 25 Mev, was demonstrated for the first time at the "Higher School's" pavilion of the All-Union Industrial Fair. The device was designed by the Tomsk Polytechnical Institute. The first betatron, radiating energy up to 5 Mev, was started at this institute in 1947. Further work in this direction produced an economical device of versatile application. Docent V.S. Melikhov suggested an original theory of seizing the electrons while speeding up, which was experimentally confirmed. Docent B.N. Rodimov examined problems of interaction of electrons in a pencil at the moment of injection and their first revolutions. Docent V.N. Titov realized an electric process of injecting the electrons. The department's scientific workers Docents A.K. Potuzhnyy, V.N. Titov and M.F. Filippov worked out the economic technology of making electromagnets for betatrons. In 1956, the Can-

Card 1/2

SOV/3-58-11-32/38

This Was Done in a Vuz. The Betatrons of the Tomsk Polytechnical Institute

didates of Technical Sciences B.A. Kononov and L.A. Sokolov succeeded in leading out a pencil of accelerated electrons from the betatron's chamber by two different methods. From 1948 - 1955, a series of betatrons with a maximum radiation energy of up to 15 Mev was manufactured at the Institute laboratories. From 1955 - 1958, the Institute built several betatrons with a radiation energy of up to 25 Mev. The article contains information on the recipients of these betatrons. Instructor V.I. Gorbunov developed a practical method of detecting defects in steel articles of considerable thickness by means of betatron radiation with an energy of up to 20 - 30 Mev. There are 3 photos.

ASSOCIATION: Tomskiy politekhnicheskiy institut imeni S.M. Kirova
(Tomsk Polytechnical Institute imeni S.M. Kirov)

Card 2/2

66336
2/22/00

AUTHORS: Amakurov, L.M., Cand.Tech.Sci., Docent; Volkov, M.M., Dr.Chem.Sci.; Vorobyev, A.I., Dr.Physico-Mathematical Sci.; Professor, Director of Tomsk Polytechnical Inst.; Filov, E.P., Cand.Tech.Sci., Docent.

TITLE: Development of Electron Accelerators at the Tomsk Polytechnical Institute

PERIODICAL: Izvestiya Vsesoyuznicheskoy nauchno-issledovatel'skoy Akademii po Elektronika, 1959, No. 1, pp 121-124 (USSR)

ABSTRACT: Work on electron accelerators at the Tomsk Polytechnical Institute was begun in 1946. The aim was to produce an inexpensive betatron installation, simple in manufacture and operation. In spite of the fact that many scientists and engineers maintained that the betatron must be supplied with a highly stable voltage, the authors developed a betatron using a supply derived from the A.C. change in frequency and voltage had to be compensated automatically, and experiments have shown that this is possible. The fact that the installation was supplied from industrial-frequency mains meant that the installation was very inexpensive. The second important

requirement for this installation was the individual proportioning of parts of the machine and its parameters, which was done bearing in mind both technical and economical considerations. Theories were developed leading to formulae which are extremely convenient and time-saving in the adjustment of betatrons. Efforts were made to reduce the overall dimensions of betatrons. M.P. Filov has developed a special yoke which ensures high azimuthal phase uniformity of the magnetic field. In 1946 V.M. Titov developed some very simple methods of injection and deflection. A betatron has been constructed, working on 150 kV, in which both half-periods of the magnetic field are used to accelerate the electrons. At the point of intersection of the beams from two targets of such a betatron the intensity is 300 roentgens per minute at one target. V.A. Maslakov and Yu.M. Akishev developed a stereo-beam, having a common magnetic circuit with two pairs of poles and two air gaps, giving effectively two accelerating chambers. This stereo-beatron may be used in medicine for deep irradiations and in radiography

4

Flu-detection in order to obtain stereo-photographs. B.A. Konakov and L.S. Sokolov developed methods for the extraction of the electron beam both by deflecting the electrons by an electric field and by removing the electrons beyond the magnetic field by means of non-magnetic channels. B.M. Rodinov and others have considered the acceleration process from the theoretical point of view. Since 1957 the Institute has been concerned with the development of powerful electron synchrotrons.

There are no figures, tables or references.

ASSOCIATION: Tomsk Polytechnicheskii Institut
(Tomsk Polytechnical Institute)

Dr. Volkov is a Departmental Head at the Ministry of Higher Education, SSSR. (Nachal'nik Otdela NVO SSSR)

Card 3/3

3/159/00/000/01/041/041

E201/E391

AUTHOR: Titov, V.N.TITLE: Conference on Electron Accelerators/9PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Fizika,
Nr 1, pp 241 - 243 (USSR)ABSTRACT: The Third All-Union Scientific Inter-university Conference
on Electron Accelerators and their Practical Applications
took place at the beginning of September, 1959, at the
Tomsk Polytechnical Institute. Over 150 papers were
presented at the Conference.

At the first (plenary) session Professor A.A. Vorob'yev
(TPI) surveyed the state of the electron accelerator science
and technology and made suggestions for future development.
Professor A.A. Sokolov (MGU) read a paper on "The Problem
of Parity Conservation".

Candidate of Medical Sciences G.P. Garganeyev, Tomsk
Medical Institute (TMI) described the first results obtained
with the 25 MeV betatron, used to produce hard X-rays for
investigation of their effects on living organisms.
During the remainder of the conference papers were read at
five specialist sections.

Card1/5

S/139/60/000/01/041/041
E201/E391

Conference on Electron Accelerators

In the theoretical section Professor A.A. Sokolov and I.M. Ternov (MGU) read a paper on "The Effect of Quantum Fluctuations on Motion of Electrons in Cyclic Accelerators"; A.N. Matveyev (MGU) presented his paper on "The Effect of Electron Losses Due to Scattering on Residual Gases in Synchrotrons".

Over 50 papers were presented in the section on cyclic electron accelerators.

Workers of the Tomsk Polytechnical Institute reported a new type of industrial betatron with 30 MeV energy. Yu.M. Akimov and V.A. Moskalev (Tomsk Polytechnical Institute) described construction of a new two-chamber betatron ("stereobetatron").

G.A. Kabanov, Ye.M. Belov and V.N. Titov (Tomsk Polytechnical Institute) discussed stabilization of γ -radiation produced by betatrons.

Instruments for measuring magnetic fields were described by V.S. Shirchenko (Physics Institute of the Ac.Sc., USSR FIAN) and by V.N. Yeponeshnikov, V.P. Kirillov and V.N. Kuz'min (Tomsk Polytechnical Institute).

Card2/5

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E201/E391

Conference on Electron Accelerators

Fifteen papers were presented in the section on high-voltage and waveguide accelerators.

A.F. Kalganov (Tomsk Polytechnical Institute) described a new rotor-type electrostatic generator. ²¹

Interesting papers were presented by V.V. Rumyantsev (Leningrad) and A.N. Fisum (Khar'kov) on travelling-wave linear electron accelerators with energies from 5 to 30-35 MeV.

B.N. Morozov and Ye.V. Padusova (Tomsk Polytechnical Institute) read a paper on "The Dispersion Properties of Curved Diaphragmed Waveguides of Rectangular Cross-section." Classification of cophased waves in rectangular waveguides was discussed by Ye.S. Kovalenko (Tomsk Polytechnical Institute).

A.M. Shenderovich (UFTI, Khar'kov) presented two papers on air-spark discharge gaps and their uses in modulation of large current pulses.

The most interesting and numerous papers were presented in the section on the applications of electron accelerators in industry, medicine, biology and physics.

Card3/5

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E201/E391

Conference on Electron Accelerators

Important work on treatment of cancer and sarcoma with betatron radiations has been done under the direction of Academician A.G. Savinykh, Professor I.V. Toroptsev, Professor K.N. Zivert and others.

Papers on treatment of cancer were presented by the following workers of the Tomsk Medical Institute:

Docent A.V. Borozdina, M.P. Lisovskaya, Professor B.S. Poyzner, G.T. Ishchenko and N.D. Gerasimova.

Some genetic effects of ionizing radiations were described by A.D. Proshina (Tomsk Medical Institute).

The youngest participant, fourth-year student of the Tomsk Medical Institute, L.F. Boginich, described the changes produced in human blood serum by betatron irradiation.

Academician A.G. Savinykh, Professor I.V. Toroptsev and Professor B.S. Poyzner took part in discussion of the medical applications of electron accelerators.

Workers of Tomsk State University described investigations of electrical properties of some materials. Workers of the All-Union Scientific-research Institute for Geophysics

Card4/5

S/139/60/000/01/041/041
E201/E391

Conference on Electron Accelerators

described the use of particle accelerators in geophysical work in mining and in oil industries.

Workers of Tomsk Polytechnical Institute described a design of a small-size betatron for lowering into a borehole and a high-voltage supply of small dimensions for use with a neutron source in geophysical work.

The conference passed a resolution asking the GNTK of the Council of Ministers of the USSR to speed up the introduction of electron accelerators into various sectors of national economy.

Papers presented at the conference will be published by the Tomsk State University.

The next (fourth) conference on electron accelerators will take place in Tomsk in February, 1962.

ASSOCIATION: Tomsk politekhnicheskiy institut imeni S.M. Kirova
(Tomsk Polytechnical Institute imeni S.M. Kirov)

SUBMITTED: September 25, 1959

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Card 5/5

9(2,3)
AUTHORS:

Vorob'yev, A.A., Solntsev, B.A., and Titov, V.N.

06540
SOV/142-2-2-16/25

TITLE:

The Application of an Electrode Electric Field for
Electron Acceleration in a Synchrotron

PERIODICAL:

Izvestiya vysshikh uchebnykh zavedeniy, Radiotekhnika,
1959, Vol 2, Nr 2, pp 246-247 (USSR)

ABSTRACT:

Coaxial cavity resonators found the most wide-spread application as electron accelerators in electron synchrotrons with annular electromagnets. They were first used by F.K. Goward and D.E. Barnes in 1946. Resonators of this type occupy a part of the pole gap of the electromagnet. Therefore, the outer conductor cannot have sufficiently large dimensions compared to the inner one. Further, bending of the resonator cannot be avoided. These conditions reduce the resonance to a considerable degree. The introduction of high-quality dielectrics into the resonator cavity Ref 1, 2, 3 does not produce a considerable increase of the parallel resistance. In 1948, at the Tomskiy politehnicheskiy institut imeni S.M. Kirova (Tomsk Poly-

Card 1/4

06540

SOV/142-2-2-16/25

The Application of an Electrode Electric Field for Electron Acceleration in a Synchrotron

technic Institute imeni S.M. Kirov) the suggestion was made to use for electron acceleration the electric field created in a gap between conductive coatings inside the chamber, as shown by figure 1. With a sufficient thickness of the conductive layer, the configuration of the electric field will not be different from the shape of the field created in the accelerating gap of a coaxial resonator. In 1955, a 20 mev synchrotron was built at the Tomsk Polytechnic Institute with the application of the aforementioned electrodes. For feeding high frequency power to the accelerating gap two metal rings were used which were placed on the accelerating chamber, as shown by figure 2. The capacitance component of the input impedance of the device was compensated by a parallel-connected inductance, as shown by the equivalent circuit in figure 3. The aforementioned device occupies little space in the pole gap of the accelerating electromagnet and provides optimum operating conditions. The

Card 2/4

06540

SOV/142-2-2-16/25

The Application of an Electrode Electric Field for Electron Acceleration in a Synchrotron

parallel resistance of the accelerating gap may be higher than with coaxial resonators. Frequency adjustments may be easily made. Special matching and balancing systems for the coupling with the HP generator are not required. The manufacture of such an accelerating device is considerably simpler than that of other accelerators. Figure 4 shows a general view of the accelerating device in the chamber. The electromagnet of the 15 mev betatron of the Tomsk Polytechnic Institute provided the magnetic field. The accelerating device was excited by a push-pull generator, composed of metal-ceramic tubes GI-12B, producing approximately 20 watts at a frequency of 350 mc. With such a power, 150 volts were obtained at the accelerating gap. The basic characteristics of the synchrotron with this accelerating device were the same as those obtained with a coaxial resonator. The gamma radiation had an intensity of 2 roentgen at 1 m

Card 3/4

06540

SOV/142-2-2-16/25

The Application of an Electrode Electric Field for Electron Acceleration in a Synchrotron

distance from the target. There are 2 diagrams, 1 photograph, 1 circuit diagram and 3 references, 1 of which is Soviet and 2 English.

This article was recommended by the Nauchno-issledovatel'skiy institut yadernykh issledovaniy, elektroniki i avtomatiki pri Tomskom politekhnicheskem institute imeni S.M. Kirova (Scientific Research Institute for Nuclear Research, Electronics and Automation at the Tomsk Polytechnic Institute imeni S.M. Kirov).

SUBMITTED: July 11, 1958

Card 4/4

TITON, V.N.

2/21/00 64444
 AUTHORS: Belov, Ye.M., Aspirant, Gorobcov, N.I., Assistant, G.S.A., or
 Technical Sciences, Kurnakov, A.I., Engineer, D.Scient.
 Filatov, Yu., Candidate of Technical Sciences, Doctor
 and Shupunov, I.V., Chief Engineer of Physicotechnical Dept.
 TITLE: A 25 Mev Double-beam Rotator
 PERIODICAL: Izvestiya vsesoyuznogo zavedeniya Elektromehanika,
 Sov. (1959, No. 4 pp 125 - 128 (USSR))
 ABSTRACT: The 25 Mev betatron was designed and built by the Tomsk
 Polytechnical Institute and can be used to obtain a dose
 of 560 roentgens per min at a distance of 1 m. The
 first described in detail was designed in Krasnoyarsk
 and ordinary 50 cps mains. In order to increase
 the dose rate, the
 25 Mev Double-beam Rotator

Card 2

The results of these experiments and the experiments on the electron gun are now described. The betatron form of the electron gun is made of two iron cores, a bell-shaped magnet whose base consists of two transverse iron cores, a demountable anode and a portion of steel. The magnet is demountable and can be rotated symmetrically. The two-channel gun is shown in Figure 6. The gun, working on 150 cps, is shown in Figure 7. The vacuum system, working synchronously with the gun, is shown in Figure 8. The two guns described include a gas-cooled anode, vacuum system and the anode collector.

9/3

S. T. O. U., U. N.

807/4-59-5-13/14
 AUTHORS: Dergach, I.P.; Assistant, Foylin, Yu.Yo.; Senior
 Lecturer, Matrosov, P.N.; Senior Lecturer, Murin, A.V.;
 Assistant, Slobodin, G.V.; Assistant, Sidor, V.V.; Candidate
 of Technical Sciences, Doceit, ~~Matryoshin~~; A.I.;
 Senior Lecturer.

TITLE: An Installation for the Displacement of a Betatron
 Electromagnet

PUBLICATION: Izvestiya Vuzicheskikh uchebnykh zavedeniy, Elektro-
 mehanika, 1959, Nr. 5, pp. 110 - 113 (USSR)

ABSTRACT: In practice it is often necessary to displace the betatron electromagnet both in the vertical and horizontal directions, and also to carry out a rotation about a horizontal axis. The authors state that western literature (Works 1 - 4) does not give sufficient detail of how this is carried out. The Tomsk Polytechnical Institute has therefore designed and built an installation which may be used to displace the betatron electromagnet in the above way.

Card 1/2

The magnet is raised or lowered (Figure 1) with the aid of motor driven screws 1. It may be rotated with the aid of another motor driven screw 2 and displaced in a horizontal direction on a pair of rails on which the wheel 1 is run. The maximum vertical displacement is 1000 mm and the displacement can be carried out at the rate of 0.36 m/min. The maximum angular displacement of the electromagnet is 60° and the maximum horizontal displacement is unlimited. The rate of the angular displacement is 0.04° - 0.10°/sec/min and the rate of the horizontal displacement is 0.55 mm/sec. The weight of the installation is 3.5 tons. There are 2 figures and 5 references, of which 3 are English, 1 is German and 1 is Soviet.

ACKNOWLEDGMENT: Endreia Prilidnaya Matematicheskii
 Institute (Chair of Applied Mechanics, Tomsk Poly-
 technical Institute)

Card 2/2

SOV/144-59-7-14/17

AUTHORS: Klyukin, A.F. (Engineer) and Titov, V.N. (In charge of the Chair (Acting) in the Physico-Technical Faculty)

TITLE: Static Frequency-Trebling of the Current for Feeding the Winding of a Betatron Electromagnet

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Elektromekhanika, 1959, Nr 7, pp 99-103 (USSR)

ABSTRACT: Two units have been constructed with powers of 2 kW and 15 kW respectively, trebling from 50 to 150 c/s. The circuit of Fig 1 in which 3 single-phase transformers have their primaries in star and their secondaries connected in series, has been known since 1912 (Ref 1). Until now no completely satisfactory design method has appeared. Starting with the proposals made by L.L. Rozhanskiy (Refs 6,7,8), a 2 kW design was attempted. The core material was 0.35 mm type 842 steel. The core cross-section was 64 cm and the primary and secondary turns were 86 and 65 respectively. The table on p 100 compares the calculated and measured performances. The power output and working voltage are less than expected. Fig 2 shows the output power and voltage and input power factor plotted against secondary current. When used with a

Card 1/3

SOV/144-59-7-14/17
Static Frequency-Trebling of the Current for Feeding the Winding of
a Betatron Electromagnet

5 MeV betatron the power output could be increased to 2.4 kW by increasing the capacitance in the tuned circuit. Fig 3 shows the effect of capacitance on output power, current and voltage. The experimental data was used to correct the design formulae by deriving coefficients k_1 and k_2 which are the ratios respectively of open-circuit to working voltage and short-circuit to working current. These are given in Fig 4 as a function of induction. The relation between secondary and primary currents determines the correct section of conductor and the value of the induced e.m.f. determines the core-section. Fig 5 compares the calculated and measured results when the anticipations of the former have been corrected. The agreement is good. The following data is required to carry out a design: core material, primary voltage, maximum output power, optimum output working voltage, optimum output current. The calculations are made in the following order, the numbers corresponding to the formulae on pp 102-103. 1, Choose working flux-density; 2, Find core-section; 3, Calculate primary turns; 4, Calculate secondary turns; 5, Find magnetizing current;

Card
2/3

SOV/144-59-7-14/17
Static Frequency-Trebling of the Current for Feeding the Winding of
a Betatron Electromagnet

6, Find primary short-circuit current; 7, Calculate low-
frequency current on open-circuit; 8, Find wire-section.
The table on p 103 compares calculated and measured
performances of a 15 kW design. The low-frequency current
on open circuit could be reduced from 130 to 20-30 amperes
by power-factor correction.
There are 5 figures, 2 tables and 9 references, 5 of which
are Soviet, 3 English and 1 Italian.

ASSOCIATION: Fiziko-tekhnicheskiy fakul'tet, Tomskiy politekhnicheskiy institut (Physico-Technical Department, Tomsk Polytechnical Institute)
Card 3/3

21.2100

81118
S/142/60/000/01/010/022
E140/E463AUTHORS: Belov, Ye.M. and Titov, V.N.TITLE: Betatron¹⁹ Gamma-Radiation Stabilizer

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Radiotekhnika, 1960, Nr 1, pp 94-99 (USSR)

ABSTRACT: The stabilizer is based on the principle of automatic phase control of the injection pulse. It realizes almost instantaneous correction at a radiation level of 95 to 97% of maximum with variation of any destabilization factors. It consists of a photomultiplier detector with cathode follower, voltage amplifier, amplitude discriminator, integrating circuit, phase-inverter, power amplifier, trigger circuit, cathode follower and controlled multivibrator. It may operate as a self-triggered time base of a DC amplifier. The sawtooth waveform controls the phase or injection pulse generation over the required limits. The experimental results are given in Fig 3 to 5. They show the difference between regulated and non-regulated relative outputs against phase variation, current and injection voltage respectively. At the present time,

Card 1/2

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E14C/E463

Betatron Gamma-Radiation Stabilizer

the authors are developing a further instrument for operation at maximum radiation intensity. There are 5 figures and 6 references, 4 of which are Soviet and 2 English.

SUBMITTED: June 3, 1959

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Card 2/2

TITOV, V.N.

Conference on electron accelerators. Izv. vys. ucheb. zav.; fiz.
no. 1:241-243 '60. (MIRA 13:12)

1. Tomskiy politekhnicheskiy institut imeni S.M. Kirova.
(Particle accelerators--Congresses)

POPOV, K.N., inzh.; TITOV, V.N., dotsent, kand. tekhn. nauk [deceased]

Photoelectronic instrument for quick determination of carbon content
in ashes. Izv. vys. uchab. zav.; energ. 8 no.6:74-76 Je '65. (MIRA 18:7)

1. Tomskiy ordena Trudovogo Krasnogo Znameni politekhnicheskiy ordena
Trudovogo Krasnogo Znameni politekhnicheskiy institut imeni Kirova.

TITOV, V. P., /zh.

Pay more attention to explosionproof hoisting machinery. Bezop.
truda v prom. 8 no. 10:20-22 O '64. (MIRA 17.11)

TITOV, V.P., kand.tekhn.nauk

Determining the stability of slopes of railroad cuts, Transp.
stroi. 10 no. 12:38-39 D '60. (MIRA 13:12)
(Railroads--Earthwork)

VIKTOROV, I.I., kand. tekhn. nauk; TITOV, V.P., kand. tekhn. nauk;
LEBEDEV, V.A., inzh.

Using gamma rays in the study of the moisture cycle of the soils
of excavations. Transp. stroi. 14 no.10:37-39 O '64.

(MIRA 18:3)

TITOV, V.P.

Thermal conditions in air-penetrable joints. Inzh.-fiz. zhur.
8 no.2:156-160 F '65. (MIRE 12:5)

1. Inzhenerno-stroitel'nyy institut imeni Kuybysheva, Moscow.

BREDYUK, G.P., kand.tekhn.nauk; TITOV, V.P., ¹¹kand.tekhn.nauk.

Prevent frost deformations on railroads under construction.
Transp. stroi. 12 no.11:47-48 N '62. (MIRA 15:12)
(Siberia—Railroads—Construction)